Emergency Respiratory Protection for Health Care Providers

OptimAir 6HC PAPR

Designed specifically for use by ER and other health care providers during Homeland Security situations. Continuous air flow meets or exceeds NIOSH standard

- Entire lightweight PAPR weighs under 6 pounds.
- Hood is compatibly worn with facial hair and glasses
- No fit testing necessary when using hood
- Design allows freedom of movement plus optimum protection
- Tychem SL hood and Advantage® 3100 facepiece are comfortable easy to don and use
- Lithium battery provides 10-year shelf life, 4 hours of wear time

- The OptimAir 6HC PAPR (Health Care Powered Air-Purifying Respirator) from MSA is specifically designed to protect health care professionals from **residual Chemical/Biological/Radiological Agents**, when they are performing First Responder duties during Homeland Security or terrorist situations.
- The system features a lightweight, chemical-resistant Tychem SL Hood and belt-mounted blower with two HC Cartridges. The canisters contain a pleated high-efficiency (P-100) filter to **remove aerosols, radionuclides, and solid particulates**; and an impregnated activated carbon bed to adsorb **(filter out) gases and vapors**. The carbon bed is the **same as used in military canisters** and is effective against mustard (HD), Sarin (GB), DMMP (a Sarin simulant), HCN, and CK.

PROTECTION

Chemical/Biological/Radiological Agents

- HE (High Efficiency Particulate Air filter for powered, air-purifying respirators
- CL: Chlorine
- SD: Sulfur dioxide
- HC: Hydrogen chloride
- HF: Hydrogen fluoride
- HS: Hydrogen sulfide (escape)
- Chemical Biological Agents
- Riot Control Agents
- Mustard (HD)
- Sarin (GB)
- DMMP (a Sarin simulant)
- HCN: Hydrogen Cyanide
- CK: Cyanide Chloride

REGION 4 HOSPITAL PERSONAL PROTECTIVE EQUIPMENT

- Purpose: To provide health care workers with training on the care and use of issued Personal Protective Equipment.
- Scope: This training is intended for health care workers assigned to their hospitals DECONTAMINATION teams.

DuPont Tyvek QC

- Booties and Elastic bands around wrists
- Intended for one time use
- One suit per team member
- Provides Level C protection IAW OSHA 1910.120

Donning Protective Suit

- Inspect chemical suit for holes, deterioration; lifts, delamination (separation of film. coating from suit), zipper and zipper cover in good working order.
- Inspect gloves, and boots for holes, cracks, tears, deterioration, or other damage
- NOTE: Exposure to petroleum products requires replacement

17m Thick -Nitrile Rubber

Will require Duct Tape to secure to Suit

One Size Fits All

One time use

One Pair per team member

Provides Level C protection IAW OHSA 1910-120

Donning Protective Suit

- Remove shoes and all personal effects (nametags, jewelry, keys, etc.) that may cause damage to suit.
- Tuck pants cuff into socks to make donning of suit legs easier.
- Place tape with last name on it on front left of suit and on back below hood and above turbo unit.

(Material)
One time use
One pair per team member
Sized for responders
Provides Level C protection
IAW OHSA 1910-120

Donning Protective Suit

- While seated, insert feet into the suit legs and stand to pull suit up to the waist.
- Insert legs into boots, and stand to insert hands and arms into suit and pull over shoulders.
- Tape leg cuff to outside of boot allowing for full range of motion to bend knees, etc:
  - Pull chemical suit pant leg elastic over the top of the boot (if suit does not have booties/feet)
  - Stand, bend knee and place foot on stool.
  - Tape chemical suit to outside of boots with knee bent.
  - Fold flap of tape over approximately ½ inch to provide tab· for easy removal.
  - Repeat for other leg.
  - ***Don PAPR according to procedure.***

Donning the Hooded PAPR

- Check equipment for:
  - hood is clean with no holes or tears in the fabric or visor.
  - air inlet into hood is not blocked and exhalation valve is working properly.
  - breathing tube has no cracks or damage.
- Check filter media cartridges for expiration date.
- Remove screw caps from cartridges and save them for later use.

Positive Air Purifying Respirator

Donning the Hooded PAPR

- Screw cartridges loosely into each of the threaded adapters. Hand tighten them so that an airtight seal is achieved between the neck of each filter cartridge and the gasket in the adapter. DO NOT OVERTIGHTEN.
- Remove the plugs from the cartridges and save them for later use
- Plug turbo unit into lithium battery and turn battery on. (NOTE: YELLOW label battery is for training, WHITE label battery is for a real event.

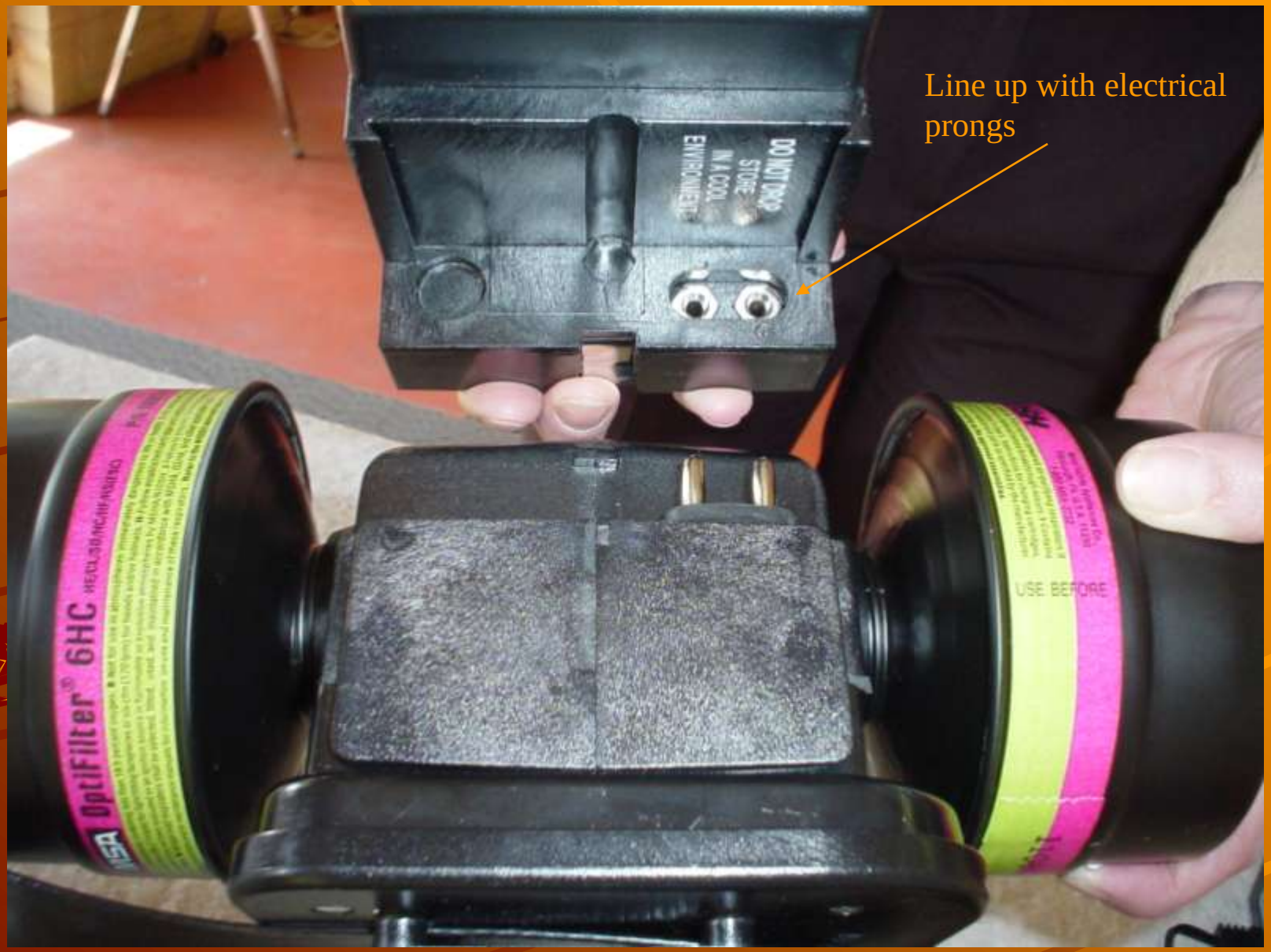
Donning the Hooded PAPR

NICAD Vs. LITHIUM Battery

NICAD Vs. LITHIUM Battery

P A P R Power Switch

Installation of Battery (NICAD or LITHIUM)



Installation of Battery (NICAD or LITHIUM)

Installation of Filters

Installation of Filters

Hand Tighten filter to Motor Blower

Installation of Hose from Hood to Motor Blower

Installation of Hose from Hood to Motor Blower

Donning the Hooded PAPR

- Insert the base of the airflow indicator fully into the turbo unit, and insure that CENTER of float ball rests at or above the mark, which is 6 cubic ft. per minute. If float does not reach mark, make sure that all plugs have been removed, or change filters or battery until proper flow is achieved. NO PAPR WITH INADEQUATE FLOW SHOULD EVER BE USED.
- Record start time on battery label. Lithium battery will operate unit for up to 12 hours.

Donning the Hooded PAPR

- Connect breathing tube to hood by snapping the breathing tube into the hood connection between the two capes at the back of the hood.
- Connect breathing tube to turbo unit by placing the hose clamp onto the free end of the breathing tube. Slide that end of the breathing tube over the turbo unit outlet and tighten the clamp
- Ensure that the breathing tube is secured to the turbo unit outlet and that the end of the breathing tube is visible between the turbo unit and the hose clamp.
- Tighten and adjust the belt clamp so that the turbo unit fits comfortably and securely against the lower back.

Donning the Hooded PAPR

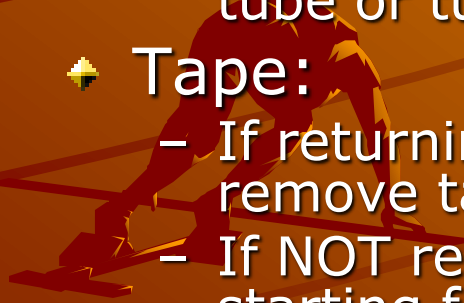
- Plug the turbo unit into the lithium battery pack and attach the battery pack to the belt with the clip so that the battery is BETWEEN the belt and the chemical suit.
- Turn on battery switch and confirm airflow into the hood. Place hood over head and adjust as follows:
  - Headband wraps around head.
  - Elastic edge of face/neck seal fits under chin.
  - Tuck cape under (inside) protective suit and allow outer hood to drape over chest and back
- Ensure that the breathing tube is not twisted after the complete system has been donned
- If airflow to the facemask reduces or stops, leave the contamination zone immediately and check battery and filters and repeat airflow check.

Donning Protective Suit Cont.

- Don cotton glove liners or thin nitrile gloves. Don butyl rubber gloves:
- Position and tape gloves to allow for full range of motion of arms without binding:
  - Pull chemical suit cuff down and position gloves over suit cuff.
  - Completely extend arms above head and then bend elbows.
  - Tape glove to suit with elbows bent.
  - Fold end flap of tape over approximately ½ inch to provide-tab for easy removal.
- Apply tape to back with job title (eg, triage, police, etc.)
- Report to Safety Officer or designee for final check before leaving cold zone.

Removing / Doffing Protective Suit

- Proceed through decontamination for wash and rinse.
  - Water should not be directed into the PAPR filter cartridges. Plugs may be inserted into the two outer cartridges if needed leaving bottom filter open.
  - Optional: Unfasten belt and remove P APR from waist, holding it away from body. (Do not disconnect breathing tube or turn off blower unit.)
- Tape:
  - If returning to Decon duties after rest cycle: Do not remove tape from suit cuff and gloves, if possible.
  - If NOT returning after rest cycle: Remove ALL tape, starting from the top down (front, wrists, and ankles) with Decon Team Member assistance.
- Unzip suit.



Removing / Doffing Protective Suit

- Lift rubber hood up from back lower comers leaning forward during the process (buddy may need to assist). Take care not to touch outside of hood to body.
- Remove facemask by pulling forward on facemask removing it from under chin and then slightly up and away. Do this with gloved hand against facemask and not against the hood.
- Turn turbo unit blower off, if possible.
- Open and un-zip front of suit.
- Peel suit off shoulders
- Hold glove fingertips and remove hands from outer gloves and arms from suit sleeves in one continuous motion. (It is acceptable if inner glove/glove liner comes off while removing outer butyl rubber gloves.)

Removing / Doffing Protective Suit

- Peel suit off body to the waist level, rolling the suit from the inside out (without coming in contact with the outside of the suit.)
- If returning to duty after rest cycle, move to rest zone for re-hydration and medical observation. Take care not to touch outside of suit if possible.
- If NOT returning to duty, continue removal by accomplishing the following:
- Peel suit off body to the waist level, rolling the suit from the inside out (without coming in "contact with the outside of the suit.)
- Sit on a clean bench/chair just outside of the clean zone.

Removing / Doffing Protective Suit

- Remove foot from boot and suit pant leg in one continuous motion.
- Place foot over the bench into the clean area.
- Remove remaining foot from boot and suit pant leg with assistance from decon team member, turn to place both feet into the clean area.
- Stand (in clean area) and proceed to rinse and shower
- Report for medical assessment.